STN Search History

FILE 'HOME' ENTERED AT 13:33:33 ON 22 SEP 2004

L1 38949 (STUNT (A) VIRUS OR (HASV AND ARMIGERA) OR NODAVIR##### OR PICOR NAVIR###### OR NUDAURELIA###### OR TETRAVIR##### OR SMALL (5N) RNA (5N) VIR#### (5N) INSECT)

(FILE 'HOME' ENTERED AT 13:33:33 ON 22 SEP 2004)

FILE 'MEDLINE, CAPLUS, BIOSIS, EMBASE, SCISEARCH' ENTERED AT 13:33:56 ON 22 SEP 2004

L1 38949 S (STUNT (A) VIRUS OR (HASV AND ARMIGERA) OR NODAVIR##### OR PI
L2 9 S L1 AND INSECT (P) (GUT OR MID-GUT OR MIDGUT)
L3 7 DUP REM L2 (2 DUPLICATES REMOVED)
L4 1155 S L1 AND INSECT
L5 98 S L1 AND (GUT OR MID-GUT OR MIDGUT)
L6 19 S L4 AND L5 NOT L3
L7 12 DUP REM L6 (7 DUPLICATES REMOVED)
L8 55 S L1 AND (RNA (A) VIRUS) (S) SMALL (S) INSECT
L9 3 S L8 AND L5

L3 ANSWER 1 OF 7 CAPLUS COPYRIGHT 2004 ACS on STN
AN 2001:58561 CAPLUS
DN 134:126824
TI Heliothis **armigera stunt virus** and its uses in protecting plants by genetic engineering
IN Christian, Peter Daniel; Gordon, Karl Hienrich Julius; Hanzlik, Terry Nelson
PA Commonwealth Scientific and Industrial Research Organization, Australia; Pacific Seeds Pty., Ltd.
SO U.S., 130 pp., Cont.-in-part of U.S. Ser. No. 440,552, abandoned.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6177075	B1	20010123	US 1995-485355	19950607
	US 2003041349	A1	20030227	US 2001-991262	20011120
PRAI	AU 1992-4081	A	19920814		
	US 1993-89372	B2	19930708		
	US 1995-440552	B2	19950512		
	US 1995-440522	B1	19950512		
	US 1999-234238	B1	19990120		

AB The present invention relates to an isolated **small RNA virus** capable of infecting **insect** species including Heliothis species, and to the nucleotide sequences and proteins encoded thereby. The invention contemplates uses of the virus in controlling **insect** attack in plants. Helicoverpa **armigera stunt virus** (**HaSV**) was characterized and used as an isolated **small RNA virus** capable of controlling **insect** attack (including Heliothis species) in plants via various genetically engineered prepns., variants, or derivs. **HaSV** contained 2 RNA species, whose nucleotide sequences consisted of 5312 and 2478 nucleotides; RNA 2 also existed as a variant with an addnl. C residue at position 570. RNA 1 coded for the 1750-amino-acid RNA replicase (mol. weight 187 kDa) as well as 3 smaller proteins (P11a, P11b, P14) coded on its 3'-terminal region. RNA 2 coded for P17 and the capsid protein precursor (P71) which is proteolytically cleaved to form 7200-mol.-weight and 64,000-mol.-weight mature capsid proteins. Viral infection activates or facilitates pathogenesis of an unrelated virus and these 2 agents act synergistically in causing larval **gut** cell disruption; the virus, its expressed RNAs, and its proteins were bioassayed on larva. PCR primers designed for specific regions of the **HaSV** genome were used to construct full-length RNA 1 and 2 clones for cloning and expression as well as clones expressing P64 and P7 capsid proteins, P70 (the RNA 2 variant capsid precursor), P71, and P17. In addition to cloning in bacterial (Escherichia coli) systems, expression of **HaSV** products was achieved with baculovirus vectors in **insect** cells (Spodoptera frugiperda Sf9) as hosts. Northern blotting also confirmed that RNA electroporation into various plant protoplasts leads to RNA replication and expression of capsid proteins. Various ribozyme oligonucleotides were synthesized in order to get efficient replication, translation, or encapsidation of the RNA by excising structures downstream of the tRNA-like structures. Engineered forms of the virus are described in which a foreign, reporter, or **insect** toxin gene is inserted in place of the 5'-terminal portion of the RNA replicase gene such that encapsidation signals and the initiation codon are used to commence gene translation. Addnl., the capsid protein can be fused to an insecticidal protein toxin (ricin A or diphtheria toxin) to form a capsovector which protects the toxin from

inactivation by **insect gut**.
RE.CNT 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 2 OF 7 BIOSIS COPYRIGHT (c) 2004 The Thomson Corporation. on STN
AN 2001:256097 BIOSIS
DN PREV200100256097
TI Pathology and properties of the **tetravirus** Helicoverpa **armigera stunt virus**.
AU Christian, Peter D. [Reprint author]; Dorrian, Susan J.; Gordon, Karl H. J.; Hanzlik, Terry N.
CS CSIRO Entomology, Canberra, ACT 2601, Australia
Peter.Christian@ento.csiro.au
SO Biological Control, (January, 2001) Vol. 20, No. 1, pp. 67-75. print.
ISSN: 1049-9644.
DT Article
LA English
ED Entered STN: 23 May 2001
Last Updated on STN: 19 Feb 2002
AB A quantitative study of the pathogenicity of Helicoverpa **armigera stunt virus** (**HaSV**) (**Tetraviridae**) isolates toward larvae of several heliothine species was conducted along with studies on the stability of the virus to a variety of chemical, enzymic, and temperature treatments. Surface contamination bioassays of several **HaSV** isolates against H. **armigera** produced 50% effective concentration (EC50) estimates ranging between 568 and 9244 virus particles (vp)/mm2. Against mid 1st instar larvae of H. **armigera**, H. punctigera, and Heliothis punctifera, EC50 estimates for one isolate were 1288, 16,137, and 2667 vp/mm2, respectively. The virulence of **HaSV** infection varied markedly with the age at which larvae were exposed to the virus. Presentation of the virus to the first three instars of H. **armigera** was accompanied by cessation of feeding, growth retardation, and eventual lethality, whereas no adverse effects were observed when later instars were exposed to the virus, even at very high concentrations. Active **HaSV** was recovered from frass of larvae exposed to the virus as 1st instars. Household bleach (1% v/v; 0.04% w/v available chlorine, 0.004% w/v NaOH), formaldehyde (1% w/v), and temperatures gtoreq 65degreeC completely inactivated **HaSV** in suspension. Treatments with ether, proteinase K (1 mg/ml), H. **armigera gut** contents, and temperatures between 22 and 55degreeC partially inactivated virus activity. No observable inactivation was observed after treatment with chloroform, chymotrypsin (1 mg/ml), trypsin (1 mg/ml), or RNase A (1 mg/ml). The virus was stable between pH 2.8 and pH 10.0 with around 60% loss of activity observed at pH 11.4. The pattern of pathogenic effects seen in several other **insect** species challenged by high concentrations of **HaSV** indicated that the host range of the virus is limited to species within the lepidopteran family Noctuidae. The apparently restricted host range of **HaSV** along with a number of other features indicate that this virus has considerable potential for the development of novel control agents for use against heliothine pests.

L3 ANSWER 3 OF 7 SCISEARCH COPYRIGHT (c) 2004 The Thomson Corporation. on STN
AN 2001:95384 SCISEARCH
GA The Genuine Article (R) Number: 393YU
TI Pathology and properties of the **tetravirus** Helicoverpa **armigera stunt virus**
AU Christian P D (Reprint); Dorrian S J; Gordon K H J; Hanzlik T N
CS CSIRO Entomol, POB 1700, Canberra, ACT 2601, Australia (Reprint); CSIRO Entomol, Canberra, ACT 2601, Australia

CYA Australia
SO BIOLOGICAL CONTROL, (JAN 2001) Vol. 20, No. 1, pp. 65-75.
Publisher: ACADEMIC PRESS INC, 525 B ST, STE 1900, SAN DIEGO, CA 92101-4495 USA.
ISSN: 1049-9644.
DT Article; Journal
LA English
REC Reference Count: 27
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS
AB A quantitative study of the pathogenicity of Helicoverpa **armigera stunt virus** (**HaSV**) (**Tetraviridae**) isolates toward larvae of several heliothine species was conducted along with studies on the stability of the virus to a variety of chemical, enzymic, and temperature treatments. Surface contamination bioassays of several **HaSV** isolates against H. **armigera** produced 50% effective concentration (EC50) estimates ranging between 568 and 9244 virus particles (vp)/mm(2). Against mid Ist instar larvae of H. **armigera**, H. punctigera, and Heliothis punctifera, EC50 estimates for one isolate were 1288, 16,137, and 2667 vp/mm(2), respectively. The virulence of **HaSV** infection varied markedly with the age at which larvae were exposed to the virus. Presentation of the virus to the first three instars of H. **armigera** was accompanied by cessation of feeding, growth retardation, and eventual lethality, whereas no adverse effects were observed when later instars were exposed to the virus, even at very high concentrations. Active **HaSV** was recovered from frass of larvae exposed to the virus as 1st instars. Household bleach (1% v/v; 0.04% w/v available chlorine, 0.004% w/v NaOH), formaldehyde (1% w/v), and temperatures greater than or equal to 65 degreesC completely inactivated **HaSV** in suspension. Treatments with ether, proteinase K (1 mg/ml), H. **armigera gut** contents, and temperatures between 22 and 55 degreesC partially inactivated virus activity. No observable inactivation was observed after treatment with chloroform, chymotrypsin (1 mg/ml), trypsin (1 mg/ml), or RNase A (1 mg/ml). The virus was stable between pH 2.8 and pH 10.0 with around 60% loss of activity observed at pH 11.4. The pattern of pathogenic effects seen in several other **insect** species challenged by high concentrations of **HaSV** indicated that the host range of the virus is limited to species within the lepidopteran family Noctuidae. The apparently restricted host range of **HaSV** along with a number of other features indicate that this virus has considerable potential for the development of novel control agents for use against heliothine pests. (C) 2000 Academic Press.

L3 ANSWER 4 OF 7 MEDLINE on STN DUPLICATE 1
AN 1999417727 MEDLINE
DN PubMed ID: 10486228
TI The specificity of Helicoverpa **armigera stunt virus** infectivity.
AU Bawden A L; Gordon K H; Hanzlik T N
CS Australian National University, Canberra, ACT, 2601, Australia.
SO Journal of invertebrate pathology, (1999 Sep) 74 (2) 156-63.
Journal code: 0014067. ISSN: 0022-2011.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199912
ED Entered STN: 20000113
Last Updated on STN: 20000113
Entered Medline: 19991222
AB Helicoverpa **armigera stunt virus** (

HaSV) is a member of the **Tetraviridae** family of RNA viruses whose replication and expression strategies are not well understood due to the absence of an in vitro cell culture system. We set out to find such a system for **HaSV** by screening an array of 13 **insect** and 1 mammalian cell culture lines with both virus particle infection and genomic RNA transfection. No cell line was found to be permissive for replication, although entry of genomic RNA was verified. The apparent specificity of this virus for its in vivo **midgut** target site was strongly corroborated by studies involving Northern blots of RNA extracted from infected **insects**. Only larval **midgut** RNA showed the presence of virus after hosts were infected per os or by injection which exposed other host cell types to the virus. The absence of replication in cell culture was due to a lack, or presence, of host factors important to replicase activity and also the likely absence of virus particle binding and entry. We thus provide both in vitro- and in vivo-based evidence demonstrating that this virus is extremely specific in the type of cells in which it will initiate an infection.

Copyright 1999 Academic Press.

L3 ANSWER 5 OF 7 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1998:1560 CAPLUS
DN 128:86401
TI Altering the cell tropism of small RNA viruses and virus-like particles by introduction of immunoglobulin-like domains into the p71 coat protein
IN Gordon, Karl Heinrich; Hanzlik, Terry Nelson
PA Commonwealth Scientific and Industrial Research Organisation, Australia; Gordon, Karl Heinrich; Hanzlik, Terry Nelson
SO PCT Int. Appl., 40 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9746666	A1	19971211	WO 1997-AU349	19970602
	W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
	CA 2256696	AA	19971211	CA 1997-2256696	19970602
	AU 9729446	A1	19980105	AU 1997-29446	19970602
	AU 723006	B2	20000817		
	EP 1015560	A1	20000705	EP 1997-923669	19970602
	EP 1015560	B1	20040331		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
	JP 2000511426	T2	20000905	JP 1998-500014	19970602
	AT 263234	E	20040415	AT 1997-923669	19970602
	US 6251654	B1	20010626	US 1999-194613	19990702
PRAI	AU 1996-234	A	19960531		
	WO 1997-AU349	W	19970602		

AB The p71 coat proteins of **small RNA viruses** of **insects** (**Tetraviridae**) have a core segment with the structure of a member of the Ig superfamily that is responsible for binding to the **insect midgut**. The cell tropism of these viruses can therefore be altered by introducing altered Ig-like

domains or other substituted tertiary structures into this core domain. Proteins of up to 30 kilodaltons can be substituted for this domain. Virus, or virus-like particles derived from, it with modified cell tropism can be used as delivery vehicles in insecticidal and medical applications. In addition, the coat protein can be modified to minimize antigenicity for therapeutic use. The Ig-like structure could be exchanged for a minimal loop (the peptide SGSGS) without affecting particle formation and RNA packaging.

L3 ANSWER 6 OF 7 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1994:550549 CAPLUS
DN 121:150549
TI Insect viruses and their uses in protecting plants
IN Christian, Peter Daniel; Gordon, Karl Heinrich Julius; Hanzlik, Terry Nelson
PA Commonwealth Scientific and Industrial Research Organization, Australia; Pacific Seeds Pty. Ltd.
SO PCT Int. Appl., 182 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9404660	A1	19940303	WO 1993-AU411	19930813
	W: AT, AU, BB, BG, BR, BY, CA, CH, CZ, DE, DK, ES, FI, GB, HU, JP, KP, KR, KZ, LK, LU, MG, MN, MW				
	AU 678982	B2	19970619	AU 1993-46912	19930813
	AU 9346912	A1	19940315		
	EP 786003	A1	19970730	EP 1993-917448	19930813
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE				
	BR 9306907	A	19981208	BR 1993-6907	19930813
	US 2003041349	A1	20030227	US 2001-991262	20011120
PRAI	AU 1992-4081	A	19920814		
	US 1993-89372	A	19930708		
	WO 1993-AU411	W	19930813		
	US 1995-440522	B1	19950512		
	US 1999-234238	B1	19990120		

AB Helicoverpa **armigera stunt virus** (**HaSV**) was characterized and used as an isolated **small RNA virus** capable of controlling **insect** attack (including Heliothis species) in plants via various genetically engineered prepns., variants, or derivs. **HaSV** contained 2 RNA species, whose nucleotide sequences consisted of 5312 and 2478 nucleotides; RNA 2 also existed as a variant with an addnl. C residue at position 570. RNA 1 coded for the 1750-amino-acid RNA replicase (mol. weight 187 kDa) as well as 3 smaller proteins (P11a, P11b, P14) coded on its 3'-terminal region. RNA 2 coded for P17 and the capsid protein precursor (P71) which is proteolytically cleaved to form 7200-mol.-weight and 64,000-mol.-weight mature capsid proteins. Viral infection activates or facilitates pathogenesis of an unrelated virus and these 2 agents act synergistically in causing larval **gut** cell disruption; the virus, its expressed RNAs, and its proteins were bioassayed on larva. PCR primers designed for specific regions of the **HaSV** genome were used to construct full-length RNA 1 and 2 clones for cloning and expression as well as clones expressing P64 and P7 capsid proteins, P70 (the RNA 2 variant capsid precursor), P71, and P17. In addition to cloning in bacterial (Escherichia coli) systems, expression of **HaSV** products was achieved with baculovirus vectors in **insect** cells (Spodoptera frugiperda Sf9) as hosts. Northern blotting also confirmed that RNA electroporation into various plant protoplasts leads to RNA replication and expression of capsid

proteins. Various ribozyme oligonucleotides were synthesized in order to get efficient replication, translation, or encapsidation of the RNA by excising structures downstream of the tRNA-like structures. Engineered forms of the virus are described in which a foreign, reporter, or **insect** toxin gene is inserted in place of the 5'-terminal portion of the RNA replicase gene such that encapsidation signals and the initiation codon are used to commence gene translation.

L3 ANSWER 7 OF 7 BIOSIS COPYRIGHT (c) 2004 The Thomson Corporation. on STN
AN 1987:336617 BIOSIS
DN PREV198784045560; BA84:45560
TI EVIDENCE FOR INTRACELLULAR ABSORPTION OF VIRUS BY THE PACIFIC OYSTER CRASSOSTREA-GIGAS.
AU HAY B [Reprint author]; SCOTTI P
CS 78 LANGANA AVE, BROWNS BAY, AUCKLAND, NZ
SO New Zealand Journal of Marine and Freshwater Research, (1986) Vol. 20, No. 4, pp. 655-660.
CODEN: NZJMBS. ISSN: 0028-8330.
DT Article
FS BA
LA ENGLISH
ED Entered STN: 8 Aug 1987
Last Updated on STN: 8 Aug 1987
AB The accumulation and release of virus by the Pacific oyster, Crassostrea gigas, was studied by autoradiographic methods. An **insect picornavirus**, cricket paralysis virus, was used as a model because of its taxonomic similarity to the human enteroviruses that might be encountered in effluent contaminated sea water. High concentrations of label accumulated in the mucus in the digestive tract when oysters were placed in sea water containing radioactively-labelled virus. Lesser concentrations appeared in the epithelial cells of the digestive diverticula tubules and **mid-gut** and in the connective tissues surrounding the digestive tract. Label was not apparent in the tissues of the gonads, gills, mantle, muscle, or labial palps. The amount of label in the mucus of the **mid-gut** decreased during depuration. However, label persisted in the **gut** epithelium and connective tissue even after 64 h depuration. The distribution of radioactivity in the tissues was the same for both nucleic acid and protein coat-labelled particles, suggesting that the virus maintained its integrity. These results provide further evidence that total removal of virus from shellfish by depuration is unsuccessful.

L7 ANSWER 1 OF 12 MEDLINE on STN DUPLICATE 1
AN 2003128481 MEDLINE
DN PubMed ID: 12642108
TI Providence virus: a new member of the **Tetraviridae** that infects cultured **insect** cells.
AU Pringle Fiona M; Johnson Karyn N; Goodman Cynthia L; McIntosh Arthur H; Ball L Andrew
CS Department of Microbiology, University of Alabama at Birmingham, 845 19th Street South, Birmingham, AL 35294, USA.
NC CA13148 (NCI)
P30 CA13148-27 (NCI)
R01 AI18270 (NIAID)
S10 RR11329 (NCRR)
SO Virology, (2003 Feb 15) 306 (2) 359-70.
Journal code: 0110674. ISSN: 0042-6822.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
OS GENBANK-AF548354
EM 200304
ED Entered STN: 20030319
Last Updated on STN: 20030422
Entered Medline: 20030421
AB We identified a new member of the **Tetraviridae**, Providence virus (PrV), persistently infecting a **midgut** cell line derived from the corn earworm (Helicoverpa zea). Virus purified from these cells also productively infected a H. zea fat body cell line, and a cell line from whole embryos of the beet armyworm, Spodoptera exigua. PrV is thus the first **tetravirus** shown to replicate in cell culture. PrV virions are isometric particles composed of two structural proteins (60 and 7.4 kDa) that encapsidate both the genomic (6.4 kb) and the subgenomic (2.5 kb) RNAs. The monopartite organization of the PrV genome resembles that of **Nudaurelia** beta virus and Thosea asigna virus, members of the genus Betatetravirus. The predicted sequence of the PrV structural proteins demonstrates homology to **tetraviruses** in both genera. The infectivity of PrV for cultured cells uniquely permitted examination of **tetravirus** RNA and protein synthesis during synchronous infection. The discovery of PrV greatly facilitates studies of **tetravirus** molecular biology.

L7 ANSWER 2 OF 12 MEDLINE on STN
AN 2002306858 MEDLINE
DN PubMed ID: 12048578
TI Triatoma patagonica (Hemiptera, Reduviidae), a new host for Triatoma virus.
AU Rozas-Dennis Gabriela S; Cazzaniga Nestor J; Guerin Diego M A
CS Departamento de Biologia, Bioquimica y Farmacia, Universidad Nacional del Sur, Bahia Blanca, Argentina.. grozas@criba.edu.ar
SO Memorias do Instituto Oswaldo Cruz, (2002 Apr) 97 (3) 427-9.
Journal code: 7502619. ISSN: 0074-0276.
CY Brazil
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 200207
ED Entered STN: 20020611
Last Updated on STN: 20020703
Entered Medline: 20020702
AB Previous authors demonstrated that Triatoma virus (TrV) is able to infect

several species of triatomines when injected with viral inoculum obtained from its original host, T. infestans. Both vertical (transovarian) and horizontal (faecal-oral) mechanisms of viral transmission were also described. In this paper we report the experimental TrV infection of a wild species from southern Argentina, T. patagonica. The inoculum consisted of clarified **gut** contents of infected T. infestans rubbed on the chicken skin whereupon T. patagonica individuals were fed. The results demonstrate that this is another potential host for the virus, and that the oral route is also effective for experimental interspecific infections.

L7 ANSWER 3 OF 12 MEDLINE on STN DUPLICATE 2
AN 2002626561 MEDLINE
DN PubMed ID: 12383435
TI Infection of its lepidopteran host by the Helicoverpa **armigera stunt virus** (**Tetraviridae**).
AU Brooks Elizabeth M; Gordon Karl H J; Dorrian Susan J; Hines Eric R; Hanzlik Terry N
CS CSIRO Entomology, Box 1700, ACT 2601, Canberra, Australia.
SO Journal of invertebrate pathology, (2002 Jun) 80 (2) 97-111.
Journal code: 0014067. ISSN: 0022-2011.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 200211
ED Entered STN: 20021018
Last Updated on STN: 20021213
Entered Medline: 20021119
AB Techniques of microscopy and histopathology were employed to study the positive-sense, single-stranded RNA virus, the Helicoverpa **armigera stunt virus** (**HaSV**; omegatetravirus, **Tetraviridae**) infecting its caterpillar host. Infection of the virus per os during the first three instars of larval development is virulent and leads to rapid stunting and mortality. In contrast, no detectable symptoms occur in later larval development, signifying a high degree of developmental resistance. A quantitative study of cell populations in the host **midgut** during this time showed that increased cell numbers during development alone could not account for the increase in resistance. **HaSV** infection was restricted to the **midgut** and three of its four cell types. In younger larvae, the virus initiated its infection in closely situated foci that appeared to expand to link with others to cover larger areas of the **midgut**. The **midgut** cells of the infected larvae responded with an increased rate of sloughing to an extent rendering the **midgut** incapable of maintenance or recovery of normal function. In contrast, infection of older larvae by **HaSV** did not lead to overt pathology although foci of **HaSV** infection were detected in their **midguts**. However, the foci were more sparsely situated, failed to expand, and eventually disappeared, presumably due to cell sloughing. These observations indicate that cell sloughing is an immune response existing throughout larval development but **midguts** of older larvae have an additional mechanism to account for the increased resistance. This second mechanism results in **midgut** cells becoming more refractory to infection and, combined with cell sloughing, allows the **midguts** of older larvae to recover more readily from **HaSV** infection. These two mechanisms are similar to those seen with host responses to baculoviruses, which display developmental resistance to a lesser degree against more general infections. **HaSV** remaining in the **midgut** appears to amplify the degree of developmental resistance.

L7 ANSWER 4 OF 12 BIOSIS COPYRIGHT (c) 2004 The Thomson Corporation. on STN DUPLICATE 3
AN 1999:495140 BIOSIS
DN PREV199900495140
TI The specificity of Helicoverpa **armigera stunt virus** infectivity.
AU Bawden, Alison L.; Gordon, Karl H.J.; Hanzlik, Terry N. [Reprint author]
CS CSIRO Division of Entomology, Canberra, ACT, 2601, Australia
SO Journal of Invertebrate Pathology, (Sept., 1999) Vol. 74, No. 2, pp. 156-163. print.
CODEN: JIVPAZ. ISSN: 0022-2011.
DT Article
LA English
ED Entered STN: 16 Nov 1999
Last Updated on STN: 16 Nov 1999
AB Helicoverpa **armigera stunt virus** (**HaSV**) is a member of the **Tetraviridae** family of RNA viruses whose replication and expression strategies are not well understood due to the absence of an in vitro cell culture system. We set out to find such a system for **HaSV** by screening an array of 13 **insect** and 1 mammalian cell culture lines with both virus particle infection and genomic RNA transfection. No cell line was found to be permissive for replication, although entry of genomic RNA was verified. The apparent specificity of this virus for its in vivo **midgut** target site was strongly corroborated by studies involving Northern blots of RNA extracted from infected **insects**. Only larval **midgut** RNA showed the presence of virus after hosts were infected per os or by injection which exposed other host cell types to the virus. The absence of replication in cell culture was due to a lack, or presence, of host factors important to replicase activity and also the likely absence of virus particle binding and entry. We thus provide both in vitro- and in vivo-based evidence demonstrating that this virus is extremely specific in the type of cells in which it will initiate an infection.

L7 ANSWER 5 OF 12 BIOSIS COPYRIGHT (c) 2004 The Thomson Corporation. on STN
AN 1996:218105 BIOSIS
DN PREV199698774234
TI A new RNA picorna-like virus in the cotton pink bollworm Pectinophora gossypiella (Lep.: Gelechiidae) in Egypt.
AU Monsarrat, A. [Reprint author]; Abol-Ela, S. [Reprint author]; Abdel-Hamid, I. [Reprint author]; Fediere, G. [Reprint author]; Kuhl, G.; El Husseini, M.; Giannotti, J. [Reprint author]
CS French/Egyptian Virol. Lab., Fac. Agric., Cairo Univ., Giza, Egypt
SO Entomophaga, (1995) Vol. 40, No. 1, pp. 47-54.
CODEN: ETPGAY. ISSN: 0013-8959.
DT Article
LA English
ED Entered STN: 8 May 1996
Last Updated on STN: 8 May 1996
AB A new virus infecting the pink bollworm Pectinophora gossypiella has been detected and purified from dead larvae collected from naturally infested cotton fields. The purified icosahedric virions measured 27 +- 1 nm in diameter and contained RNA genome. Three capsid proteins of 31.7, 32.6 and 47.4 Kd have been separated on polyacrylamide gel. The purified virus was not highly infectious to the host larvae revealed while the pupal period survived from infected larvae was significantly prolonged. The virus particles infecting the **midgut** cells are grouped in paracrystallin arrays. The virus was vertically transmitted through

infected adults. The main characteristics of this virus place are quite relative to the **Picornavirus** group.

L7 ANSWER 6 OF 12 BIOSIS COPYRIGHT (c) 2004 The Thomson Corporation. on STN
AN 1993:433517 BIOSIS
DN PREV199396088142
TI Detection of a picorna-like virus, himetobi P virus, in organs and tissues of Laodelphax striatellus by immunogold labeling and enzyme-linked immunosorbent assay.
AU Suzuki, Y.; Toriyama, S. [Reprint author]; Matsuda, I.; Kojima, M.
CS Fac. Agric., Niigata Univ., Ikarashi, Niigata 950-21, Japan
SO Journal of Invertebrate Pathology, (1993) Vol. 62, No. 1, pp. 99-104. CODEN: JIVPAZ. ISSN: 0022-2011.
DT Article
LA English
ED Entered STN: 22 Sep 1993
Last Updated on STN: 22 Sep 1993
AB Himetobi P virus (HiPV)-infected planthoppers (Laodelphax striatellus) were dissected and HiPV antigen present in salivary gland, heads, **midguts**, hindguts (plus Malpighian tubules), and sexual organs were examined by enzyme-linked immunosorbent assay (ELISA). Extremely high ELISA values were obtained in **midguts**. HiPV antigen was present in low amounts in hindgut samples, but was not detected in salivary glands. Electron microscopy showed that epithelial cells of **midguts** were heavily infected with HiPV. Infected cells were vacuolated and collapsed. Spherical viruses, which were specifically labeled with the HiPV-immunogold conjugate, were observed dispersed or aggregated in cytoplasms and vacuoles and occasionally in crystalline arrays. Large numbers of virus particles were found in lumens of **midgut**, hindgut, and Malpighian tubules. The feces of planthoppers contained extremely high concentrations of HiPV particles. Contaminations of host plant leaf surfaces with HiPV seem to be mainly by feces.

L7 ANSWER 7 OF 12 BIOSIS COPYRIGHT (c) 2004 The Thomson Corporation. on STN
AN 1989:288716 BIOSIS
DN PREV198988014060; BA88:14060
TI INHIBITION OF THE ACCUMULATION OF VIRUS-SPECIFIC TRANSLATABLE MESSENGER RNA AND STRUCTURAL POLYPEPTIDES BY GUANIDINE HYDROCHLORIDE IN THE **MIDGUT** OF THE SILKWORM BOMBYX-MORI INFECTED WITH INFECTIOUS FLACHERIE VIRUS.
AU CHOI H [Reprint author]; KOBAYASHI M; KAWASE S
CS LAB SERICULTURAL SCI, FAC AGRIC, NAGOYA UNIV, CHIKUSA, NAGOYA 464-01, JPN
SO Journal of Invertebrate Pathology, (1989) Vol. 53, No. 3, pp. 392-400. CODEN: JIVPAZ. ISSN: 0022-2011.
DT Article
FS BA
LA ENGLISH
ED Entered STN: 20 Jun 1989
Last Updated on STN: 20 Jun 1989
AB Effect of guanidine hydrochloride (GH) on the accumulation of translatable mRNA and structural polypeptides of the virus was investigated in the larval **midgut** of the silkworm, Bombyx mori, infected with infectious flacherie virus (IFV). When GH was ingested continuously by the IFV-infected larvae from the beginning of virus infection, the accumulation of both the viral translatable mRNA and its structural polypeptides was inhibited. The inhibition, however, ended shortly after the cessation of GH ingestion as a result of molting or maturation of IFV-infected larvae. The fact indicates that the inhibitory effect of GH

was reversible. Upon reversal of GH treatment, appearance of viral translatable mRNA in the IFV-infected **midgut** preceded that of viral structural polypeptides by 12 to 24 hr, suggesting the inhibitory effect of GH on accumulation of viral structural polypeptides is secondary to that on translatable mRNA. In an experiment using newly ecdysed fifth instar larvae, it was found that IFV inoculated per os was able to persist in the GH-treated **midgut** for a significant period of time in a state capable of completing its multiplication cycle upon removal of GH treatment. This excludes the possibility that GH acted to inhibit the step of adsorption and/or internalization of the virus inoculated. Thus, our data suggest that the inhibition of IFV multiplication occurs at either the translation of input genomic RNA or the synthesis of virus-specific negative- or positive-stranded RNA.

L7 ANSWER 8 OF 12 BIOSIS COPYRIGHT (c) 2004 The Thomson Corporation. on STN
AN 1989:227633 BIOSIS
DN PREV198987119250; BA87:119250
TI MORPHOLOGICAL COMPARISONS OF ECHINOCHLOA RAGGED STUNT AND RICE RAGGED **STUNT VIRUSES** BY ELECTRON MICROSCOPY.
AU CHEN C C [Reprint author]; CHEN M J; CHIU R J; HSU H T
CS TAICHUNG DISTRICT AGRICULTURAL IMPROVEMENT STATION, CHANGHUA 515, TAIWAN
SO Phytopathology, (1989) Vol. 79, No. 2, pp. 235-241.
CODEN: PHYTAJ. ISSN: 0031-949X.
DT Article
FS BA
LA ENGLISH
ED Entered STN: 7 May 1989
Last Updated on STN: 7 May 1989
AB The morphological characters of Echinochloa ragged **stunt virus** (ERSV) and rice ragged **stunt virus** (RRSV) were compared by electron microscopy. Virions in negatively stained purified samples and dip preparations from leaves of Echinochloa crus-galli var. oryzicola infected with ERSV were 54-58 nm in diameter. Smaller B-spiked particles, 50 nm in diameter, were observed in purified preparations. Hexagonal particles measuring 72 nm in diameter, with A-spike projections, were present occasionally in crude dips prepared from glutaraldehyde-fixed leaves. In ultrathin sections of ERSV-infected plant tissues, particles 60-70 nm in diameter with densely stained cores occurred along the outer membranes of mesophyll chloroplasts and in viroplasms of phloem parenchyma cells. Particles approximately 55-75 nm in diameter were found in thin sections of cytoplasm of cells of the salivary gland, fat body, **gut**, brain, gastric caeca, and ommatidia cornea cells of the compound eye of viruliferous ERSV vectors, Sogatella longifurcifera. Purified RRSV consisted mostly of 55-nm-diameter subviral particles. Particles 62-66 nm in diameter were observed only in crude sap preparations of infected rice [Oryza sativa] leaves fixed with glutaraldehyde. Particles of two different sizes, 40 nm and 55-70 nm in diameter, were scattered in the viroplasm in phloem cells of RRSV-infected rice plants. In thin sections of the viruliferous RRSV vector, Nilaparvata lugens, particles of 60-75 nm were found in the cytoplasm of salivary gland, fat body, seminal vesicle, **gut**, and muscle cells.

L7 ANSWER 9 OF 12 MEDLINE on STN DUPLICATE 4
AN 89124457 MEDLINE
DN PubMed ID: 2915146
TI Changes in infectious flacherie virus-specific polypeptides and translatable mRNA in the **midgut** of the silkworm, Bombyx mori, during larval molt.
AU Choi H K; Kobayashi M; Kawase S

SO Journal of invertebrate pathology, (1989 Jan) 53 (1) 128-31.
Journal code: 0014067. ISSN: 0022-2011.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 198903
ED Entered STN: 19900308
Last Updated on STN: 19900308
Entered Medline: 19890320

L7 ANSWER 10 OF 12 BIOSIS COPYRIGHT (c) 2004 The Thomson Corporation. on STN
AN 1989:3473 BIOSIS
DN PREV198987003473; BA87:3473
TI MULBERRY PYRALID GLYPHODES-PYLOALIS HABITUAL HOST OF NONOCCLUDED VIRUSES PATHOGENIC TO THE SILKWORM BOMBYX-MORI.
AU WATANABE H [Reprint author]; KURIHARA Y; WANG Y-X
CS LAB SERICULTURAL SCI, FAC AGRIC, UNIV TOKYO, BUNKYO-KU, TOKYO 113, JPN
SO Journal of Invertebrate Pathology, (1988) Vol. 52, No. 3, pp. 401-408.
CODEN: JIVPAZ. ISSN: 0022-2011.
DT Article
FS BA
LA ENGLISH
ED Entered STN: 6 Dec 1988
Last Updated on STN: 6 Dec 1988
AB Larvae of the mulberry pyralid, Glyphodes pyloalis, which infest mulberry plantations, are frequently infected with nonoccluded viruses that are serologically indistinguisable from the densonucleosis viruses (DNV-1, DNV-2) and the infectious flacherie virus (IFV) of the silkworm, Bombyx mori. Histochemical and electron microscopical investigations of presumably normal mulberry pyalid larvae reveal that the viruses multiply only in a very small number of **midgut** cells and cause a chronic nonlethal infection. When silkworm larvae are fed with a suspension of macerated pyralid larvae infected with viruses, severe typical densonucleoses and infectious flacherie develop at high frequencies. Our results suggest that Bombyx DNV-1, DNV-2, and IFV originated from the Glyphodes nonoccluded viruses, and epizootiologically, the mulberry pyralid is a common habitual host of these nonoccluded viruses.

L7 ANSWER 11 OF 12 BIOSIS COPYRIGHT (c) 2004 The Thomson Corporation. on STN
AN 1986:306319 BIOSIS
DN PREV198682040225; BA82:40225
TI CHARACTERIZATION OF A **PICORNAVIRUS** ISOLATED FROM PSEUDOPLUSIA-INCLUDENS LEPIDOPTERA NOCTUIDAE.
AU CHAO Y-C [Reprint author]; YOUNG S Y III; KIM K S
CS DEP ENTOMOL, UNIV ARKANSAS, FAYETTEVILLE, ARKANSAS 72701, USA
SO Journal of Invertebrate Pathology, (1986) Vol. 47, No. 3, pp. 247-257.
CODEN: JIVPAZ. ISSN: 0022-2011.
DT Article
FS BA
LA ENGLISH
ED Entered STN: 25 Jul 1986
Last Updated on STN: 25 Jul 1986
AB Some properties and electron microsopy of an icosahedral RNA virus isolated from the soybean looper, Pseudoplusia includens, have been studied. The virus particles were 25 ± 1 nm in diameter, their sedimentation coefficient was 178 ± 4.2 S, and their buoyant density was 1.37 ± 0.01 g/cm3. The RNA content was 37.9 ± 0.2% and the RNA was single stranded with a poly(A) track. The virus capsid contained

three major proteins with molecular weights of 30.0 ± 0.8, 31.0 ± 0.9, 34.0 ± 1.1 + 103, and two minor proteins with molecular weights of 33.0 ± 1.2 and 38.0 ± 1.1 + 103. One genome component was detected with molecular weight 3.3 ± 0.1 + 106. Agarose gel diffusion tests showed this virus has partial identity with cricket paralysis virus, Victoria strain. Electron microscopy revealed that high concentrations of virus particles were present in the **midgut** epithelial cells. Virus particles present in the lumen adjacent to these **midgut** epithelial cells appeared to have moved to the lumen from these cells. Virus particles could also be observed in the epidermal cells. Accumulations of microtubule and fibril containing vesicles in these cells appear to be due to the virus infection. It is proposed that this virus be included in the family **Picornaviridae**
.